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TITLE: Unified message parser apparatus and system for real-time event correlation

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ABSTRACT:

Systems and methods consistent with the present invention perform message parsing in a distributed component-based network management system using a parsing knowledge structure called a Message Class Grammar (MCG) containing the set of all potential pre-calculated parsing sequences for an active network element. The MCG may be customized to the messages of different active network elements. A universal parsing procedure (UPP) may be used to traverse the hierarchy structure of the MCG. Tracing the MCG hierarchy from the root node along class-subclass arcs until a terminal node is reached determines the parsing sequence for a particular message. The MCG may be developed with a text editor or with a graphical user interface that enables a non-programmer to edit the parser structure.

What is claimed is:

1. A system for parsing network messages, comprising: a parser knowledge structure on a computer readable medium comprising a hierarchal graph of message classes, wherein each message class parses a portion of the message; and a universal parsing procedure means for driving the parser knowledge structure including means for receiving a remaining portion of the message being parsed from a higher level message class if message class parsing the portion of the message is not the root node, or retrieving and the message from the notification service if the message class performing the method is the root node.

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## Device for managing data

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| Patent      | EP      | 921479   | A1   | 19990609 | (Basic) |
| Application | EP      | 98203995 |      | 19981127 |         |
| Priorities  | NL      | 107722   |      | 19971208 |         |

### Abstract EP 921479 A1

A device for managing data relating to entities which may or may not be known beforehand comprises a central processing unit which, supplied with a suitable program code, is capable of receiving and storing the data in the form of status messages relating to one or more entities. The data is stored in a dynamic structure which for each entity provides space for a unique identification and for a first collection of references to possible subordinate entities and a second collection of references to superior entities. The structure is herein set up such that a status message relating to any entity is likewise valid for each subordinate entity associated with the relevant entity by means of its first collection.

### Specification:

The present invention has for its object inter alia to provide a device for managing data relating to entities which may or may not be known beforehand which on the contrary is particularly dynamic in the sense that no demands are made on the time sequence in which data is processed and organizational expansion and other changes in the reality can be accommodated practically without problem and often without any appreciable adaptation of the software.

In order to achieve the stated objective a device of the type mentioned in the preamble has the feature according to the invention that the data is stored in a dynamic structure which for each entity provides space for a unique identification and for a first collection

of references to possible subordinate entities and a second collection of references to superior entities such that a status message relating to an entity is likewise valid for each subordinate entity associated with the relevant entity by means of its first collection. This feature of the device according to the invention is manifested in a data structure which can be designated mathematically as an acyclic **digraph**, which may or may not show cohesion. The supplied data in the form of **status messages** relating to the entities for monitoring can comprise, whether or not directly, an entry of a new entity or contain a status change relating to an entity already included in the structure. Such an event is then also applicable to all entities which are subordinate to the relevant entity and references of which are kept in the first collection with references.